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ABSTRACT

The effectiveness of the impress method of reading instruction, in which the student and teacher read aloud simultaneously, was studied. The subjects were 24 fourth and fifth grade students from a New Jersey school, whose reading level was a year or more below grade placement (indicated by scores on a standardized achievement test) and who averaged 1.2 years below expectancy age grade placement. They were randomly assigned to one of three groups: impress, phonics, or control nontreatment. The impress and phonics groups received 15 minutes of instruction daily for six weeks. Pre- and post-testing was done on standardized tests for oral reading, speed, accuracy, vocabulary, and comprehension. There was no measurable achievement in reading ability in any of the groups, and the study therefore was not able to demonstrate the effectiveness of the impress method. It was concluded that limitations of the research were the tests used, the small number of subjects, and the type of subjects--previous research had shown the effectiveness of the impress method on more severely retarded readers. (Tables of data and references are included.) (Author/MF)

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AN IMPRESS METHOD OF READING INSTRUCTION

A THESIS

SUBMITTED TO THE FACULTY

OF THE GRADUATE SCHOOL OF EDUCATION

OF

RUTGERS UNIVERSITY

THE STATE UNIVERSITY OF NEW JERSEY

BY

PATRICIA GAWARKIEWICZ

IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE

OF

MASTER OF EDUCATION

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APPROVED: Edward Fry
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DEAN: _____

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ABSTRACT

This study investigated the impress method of reading instruction. The impress method is an oral reading technique where the teacher and student read aloud simultaneously. The emphasis is on conditioning a smooth, fluent oral reading pattern.

Procedures

Twenty-four students in grades 4 and 5 from Central School, East Brunswick, New Jersey, served as subjects for this study. All students were reading one year or more below grade placement on the paragraph meaning subtest of the Stanford Achievement Test and averaged 1.2 years below expectancy age grade placement (XAGP). These students were randomly assigned to one of three groups: impress, phonics, or control nontreatment. The impress group was taken out of class and instructed with the impress technique for 15 minutes a day, 5 days a week for 6 weeks. The phonics group was taken out of class and instructed in phonics for the same period of time. By operating under similar conditions of individualized instruction, this group controlled for the Hawthorne effect. A nontreatment control group remained in their class and were pre- and posttested.

Comparisons were made among the three groups based

on pre- and posttesting with the Gray Oral Reading Test, Forms A and B, and posttesting only with the Gates-MacGinitie Reading Test, Survey D, Form 1, subtests in speed and accuracy, vocabulary, and comprehension. The Kruskal-Wallis one-way analysis of variance by ranks was applied to the data to test for significance at the .05 level of confidence.

Expectancy age scores were computed to determine what each student could be expected to do according to his ability. These scores were compared with the comprehension subtest of the Gates-MacGinitie Reading Test to determine whether the student was reading at, above, or below XAGP.

Conclusions

There was no measurable achievement in the reading ability of the students in the impress, phonics, or nontreatment control groups and this study was not able to demonstrate the effectiveness of the impress method.

A serious limitation was the type of pupil selected. Students were selected on the basis of chronological age and a reading disability of at least one year below grade placement. Previous research indicated that the impress method had been successful with a population of "severely retarded students" with I.Q.'s above 85 who were reading two to three years below grade placement and expectancy.

The population used in this investigation had five pupils with I.Q.'s below 85 and 22 percent of the population reading below expectancy.

The tests used were developed for annual measurement and in this study were used for pre- and posttesting during a six-week treatment period.

The study was further limited by the small number of participants.

Summary

There were no significant differences among impress, phonics, and nontreatment control groups on the pre- and posttests of the Gray Oral Reading Test and the posttests of the Gates-MacGinitie Reading Test.

CHAPTER I

INTRODUCTION

Background of the Problem

A constant concern of reading teachers is the search for efficient means of developing reading skills. Because different children learn to recognize words by different teaching methods, a teacher must be aware of these individual differences when applying instruction techniques. The teacher should be versatile in the use of various techniques; this is especially true for the teacher of remedial reading, as presentation of material through a new approach may improve reading skills.

The impress method of teaching reading (sometimes called the neurological impress method) has been cited as an effective remedial reading method which is easy to use for both the instructor and the student and is economical (Heckelman, 1966).

The impress method, devised by Heckelman in 1952 (Heckelman, 1966), involves the teacher and the student in a unison reading process where the student and the teacher read aloud simultaneously. The student is placed slightly in front of the teacher with the student and the teacher

holding the book jointly. As the student and the teacher read in unison, the teacher's voice is directed into the ear of the student. The teacher, at first, and the student, later on, use a finger as a locater. The finger slides along the line following the words that are being spoken; the finger must be at the location of the spoken word. At times the teacher may be louder and faster than the student, and at other times his voice may be softer and slower than the reading voice of the student.

The goal of the impress method is to read as many pages of material as time permits without causing physical discomfort. During the impress reading period, no attention is called to the pictures accompanying the reading materials, nor does the teacher attempt to teach sounds of words or word-recognition skills. The child is not asked comprehension questions after the reading session. The teacher should, though, comment positively on the success of the child, calling attention to the fluency of his reading (Heckelman, 1966).

The success of the method has been experimentally demonstrated by Heckelman in a study involving 24 students in grades 7 through 10 who were experiencing "severe reading difficulty." After a total of 7-1/2 hours of instruction, the mean gain in reading ability as a result of the

impress method was 1.9 grade levels on the Gilmore Oral Reading Test. Raw scores were not available.

Statement of the Problem

The problem is to investigate the effectiveness of the impress method. This will be done by comparing any gains made in the reading achievement of subjects in the impress, phonics, and control groups. Comparisons will be made from the scores of the Gray Oral Reading Test and the Gates-MacGinitie Reading Test, subtests in speed and accuracy, vocabulary, and comprehension.

Statement of the Hypotheses

Stated more formally, this study will attempt to test the following statements:

1. There is no significant difference in the oral reading scores of subjects in the impress, phonics, and control groups when oral reading is determined by the Gray Oral Reading Test.

2. There is no significant difference in the silent reading speed and accuracy scores of subjects in the impress, phonics, and control groups as determined by the speed and accuracy subtest of the Gates-MacGinitie Reading Test, Survey D, Form 1.

3. There is no significant difference in the ability of subjects in the impress, phonics, and control groups

to identify vocabulary as determined by the vocabulary subtest of the Gates-MacGinitie Reading Test, Survey D, Form 1.

4. There is no significant difference in the comprehension scores of subjects in the impress, phonics, and control groups as determined by the comprehension subtest of the Gates-MacGinitie Reading Test, Survey D, Form 1.

Importance of the Study

Learning to read is not a smooth developmental process for all children. The impress method may improve reading skills for those children experiencing difficulty with the reading process. If the effectiveness of the impress method can be substantiated for a group of students having difficulty with reading, the study would have positive implications for improvement of reading skills. As the method requires no special equipment and is a simple, direct technique, it would be economical to use.

Definitions of Terms

The following definitions apply in this study:

Remedial reading. Individual or small group reading instruction outside the regular classroom for students who are experiencing difficulty with the reading process.

Phonics method. Teaching the knowledge of letter-sound correspondences in isolation and as parts of words.

Reading skill. Ability to identify the printed word.

Reading disability, reading difficulty. Limited reading skill with the potential capacity to do better.

Reading expectancy. Reading expectancy is a derived score based on the formula $\frac{2\ MA + CA}{3}$.

Reading expectancy grade placement. The standard age at entrance in school, 5.4, is subtracted from the reading expectancy age to determine expectancy age grade placement.

Limitations of the Study

One limitation of this study was the size of the sample population. Because of the individual nature of the impress method, a total of only eight students could be tutored with the impress method and only eight students could be tutored with the phonics method, as each child received 15 minutes of instruction each day for 30 days (6 weeks) with the same instructor.

Physical facilities were limited to tables and chairs located in the hallways of the three wings of the school.

Overview of the Study

The impress method has been cited as an effective method of reading instruction with a selected remedial

population. This study used a remedial population of fourth- and fifth-grade students who received reading instruction with the impress method. The impress group was compared with a second group receiving phonics instruction. A third group, the nontreatment control, was tested but received no special instruction. The three groups were randomly selected from the remedial population of students reading one year or more below grade placement by picking their names from a hat.

If the impress method is effective, it may become an approach used by teachers to develop reading skills.

Research pertaining to the impress and phonics methods will be reviewed in Chapter II with explicit procedural explanations discussed in Chapter III. The results of the study and a discussion will follow in Chapter IV. A summary and the conclusions of the study will be presented in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

The impress method of reading instruction has been successful in developing the reading ability of some children with severe reading disabilities. Heckelman postulates that the impress method brings about the extinction of "phonetic boundness" and its accompanying tension over failure to read. It is a feedback system that involves hearing, vision, and speaking implications in terms of the reconditioning of a reading pattern (Gardner, 1965, p. 5).

History

The impress method was first used in 1952 by Heckelman (Heckelman, 1966), who hypothesized that since speech problems in stuttering tend to stop if the sound of the stutterer's voice is fed back simultaneously into a stutterer's ears, a similar process of feedback could be imitated in a reading situation. This might effect a "neurological change." A new learning process might be established and the older, defective learning process might be suppressed. It was further hypothesized that this need not be the reader's own voice, but that it could be the voice of someone else reading the same material at

the same time (Heckelman, 1969).

Heckelman describes a specific type of reading disability that he has labeled "phonics bound." "Phonics bound" describes a condition found in students who would be classified as reading disability cases and who are in the fifth grade or higher. These students possess low-average to superior IQs but are distrustful of their own reading ability and are unable to read words smoothly in sequence. For this specific group of children, word attack is a laborious, slow process and the use of an intensive phonics program would continue to be nonproductive since distinguishing or interpreting sounds seems to be limited. In dealing with the "phonics bound" child, it is necessary in most cases to reduce or change the phonics approach and resort to other modes which do not depend upon the auditory mode for remedial instruction. Methods designed to bypass the auditory-interpretation difficulty, to retrain defective operations, and specifically to develop neurological areas in which these particular children can perform better might be substituted. The impress method might be one of these methods (Heckelman, 1965).

Research on the Impress Method

This chapter will review the limited number of published studies and articles that have investigated the

impress method and will also review some representative summaries related to phonics instruction.

Two unpublished pilot studies, both having no control groups, were noted in the impress literature. Heckelman (1961) conducted a program using the impress method of reading instruction in the Merced County, California, schools. Twenty-four students in grades 6 through 10 were each given a total of 5 hours of instruction with the impress method. A mean reading gain of 2.2 years on the Gilmore Oral Reading Test was achieved. The second program, conducted by Gardner (1963) in the Sonoma County, California, schools, used the impress method with six students for 10 minutes a day, 5 days a week, for 6 weeks, totaling 5 hours of impress time. A mean gain of 1.6 years was achieved. The test used in this pilot program was not identified and raw scores were not reported.

Heckelman (1969) conducted a study with 24 students in the seventh through tenth grades. Each student was performing at least 3 years or more below his actual grade placement and his expectancy in reading. The students represented a group who had made the least progress in reading; they had not been able to profit from any type of remedial-reading or regular classroom experience. The students registered IQ scores of 90 or above on the Wechsler Intelligence Scale for Children, with no students

in the group having known organic brain damage or severe functional personality disorders. The impress method was followed in individual sessions with these students for 15 minutes each day, 5 days a week, for 6 weeks. After a maximum allowed time of 7 hours and 15 minutes, the oral reading results were evaluated by the Gilmore Oral Reading Test and the silent reading results by the California Reading Test. "Of the twenty-four children given this experience in the use of the impress method of reading instruction, a large percent of the group made remarkable progress [Heckelman, 1969, p. 281]." The mean gain in reading comprehension of the group was reported as 1.9 grade levels. Raw scores were not reported. While all children did not make substantial gains in reading proficiency, they all showed at least creditable growth. No control groups were used in this study.

Gardner's cooperative reading project (1965) involved three groups in grades 5 through 8, matched for IQ, chronological age, grade placement, reading level, and sex. The experimental group consisted of 20 students who received a total of 5 hours of individual instruction (10 minutes per day) with the impress method, a control group of 20 students who also received 5 hours of individual instruction (10 minutes per day) in conventional reading techniques, and a prime control group of 9 students who

received no special instruction but were given the various tests.

Table 1 shows that the mean reading gain of 0.32 grades for the experimental group was greater than the gain of 0.02 grades for the control group. The prime control group suffered a loss of 0.02 grades. The follow-up testing at the end of the school year showed that both the experimental and control groups continued to gain substantially in reading comprehension, the former slightly more than the latter, whereas the prime control gained very little during the follow-up period. Gardner (1965) concludes: "From a statistical standpoint we can accept the fact that these differences are true differences and reject the null hypothesis that there are no differences between the experimental and control groups [p. 7]." The data to check these conclusions are not available.

A study by Hollingsworth (1970) made an attempt to overcome two of the limiting factors of the impress method--the time and the physical discomfort to the teacher when working with several students. The purpose of the study was to determine whether reading achievement could be improved by the impress method using an E.F.I. wireless system. Eight pupils from the control group were matched with the eight students who were selected for the experimental group. No statistically significant

TABLE 1

RESULTS OF GARDNER'S EXPERIMENTAL USE OF THE IMPRESS METHOD OF READING HABILITATION THROUGH COMPARISON OF MEAN GRADE EQUIVALENT SCORES[a] AMONG EXPERIMENTAL, CONTROL, AND PRIME CONTROL GROUPS

	Pretest 2/65 mean reading score	Posttest 3/65 mean reading score	6-Week period mean reading gain	Follow-up 6/65 mean reading score
	Yrs.-mos.	Yrs.-mos.	Yrs.-mos.	Yrs.-mos.
Experi-mental	1.8	2.1	0.32	3.6
Control	2.0	2.0	0.02	3.3
C'	1.9	1.9	-0.02	2.0

[a]Refers to Gates Silent Reading Test.

Note: N for experimental = 20; N for control = 20; N for C' = 9.

From: C. E. Gardner, Experimental use of the impress method of reading habilitation, Cooperative Reading Project S-167 (U.S. Office of Education, 1965) (ERIC 003838), p. 6.

differences were found between the mean reading abilities or the mean IQs of the groups.

The tapes for the E.F.I. wireless system used various stories of interest for fourth-grade students. Ten tapes were made at each grade level from first to sixth. Each tape ran from 12 to 15 minutes. Each child in the experimental group read 30 stories at 30 different daily sessions. Ten stories were one grade level below his reading achievement level, as determined by the Gates-MacGinitie Reading Test; ten stories were at his level; and ten stories were above his level.

While the stories were broadcast, the child read aloud into his own mike, which was attached to his headset so that the child could hear his own voice and the voice on the tape simultaneously. The teacher could monitor eight children quite successfully by plugging her headset into the child's individual receiving set to determine if the child was reading with the taped voice and if his finger was under the words read. After a total of 7-1/2 hours of using the E.F.I. wireless system, the Gates-MacGinitie Reading Test, Survey D, Form 2, was administered. Table 2 shows that no significant differences were found between the two groups in any of the four subtest scores on the test. It should be noted that the pacing procedure described by Dr. Heckelman was not included in

TABLE 2

RESULTS OF HOLLINGSWORTH'S EXPERIMENT WITH THE IMPRESS METHOD OF TEACHING READING WITH MEAN SCORES[a] AND *F* RATIOS[b] FROM ANALYSIS OF VARIANCE FOR THE EXPERIMENTAL AND CONTROL GROUPS

Group	Vocabulary	Comprehension	Speed	Accuracy
Experimental mean	5.02	4.93	4.37	4.55
Control mean	4.42	5.00	4.15	4.35
F ratio[b]	2.62	0.013	0.259	0.205

[a]Refers to the Gates-MacGinitie Reading Tests, Survey D, Form 2 (raw scores not available).

[b]F_1: 14 = 4.60 to be significant at the .05 level of confidence.

From: P. M. Hollingsworth, An experiment with the impress method of teaching reading, The Reading Teacher, 1970, 24, 114.

the procedure.

It was hypothesized by Hollingsworth that in order for improvement to take place with the impress technique, there must be the personal involvement by the teacher and one child reading together, and that this technique may be effective with retarded readers rather than with normal readers.

The one published experience of a classroom teacher using the impress method with a remedial student presented a favorable view of the technique. The reading sessions were conducted before the school day began and lasted for 15 minutes each morning. The teacher reported that the student made reading gains and also seemed to make gains outside the field of reading. The individual contact with the teacher appeared to meet an emotional need of the student, and he appeared more secure in his relations with others. He was able to volunteer in class and to take the lead in reading sessions which had previously been unrewarding experiences for him (Miller, 1969).

Survey of Phonics

Phonics instruction has been the subject of much educational research. In this section, summaries that represent the relationship of phonics to reading and the important role played by phonics in reading achievement will be discussed.

Phonics is an important part of a reading program for all students. Heilman (1968) states that a child learning to read English writing must learn to associate printed letters with speech sounds--he cannot become an independent reader without this skill. Applying phonics skills permits the reader to "work out" the pronunciation or the approximate pronunciation of printed words not known as sight words.

Chall (1967) reviewed selected studies which compared the effects of different amounts of phonics in the primary grades and concluded that programs which included systematic phonics instruction resulted in higher pupil achievement than did those programs which included little or no phonics.

Phonics should not be overlooked because of the problems it might cause slow learners. Bear (1964) found that, for the average and below-average pupil, phonics instruction as part of a comprehensive, well-balanced reading program was beneficial. Chall (1967) states that a phonics approach for students with reading disabilities would have good results if properly designed, properly designed meaning a simplified phonics approach using words controlled for spelling regularity.

While there is disagreement on approach and amount of phonics instruction to be taught, most scientifically

accurate experiments show that phonics has considerable value for the student learning to read (Morrone, 1958).

Because of its importance and because it provides an interesting alternative method of reading instruction, phonics has been selected as the instructional method for the control group.

Discussion

The impress and phonics methods are both concerned with developing the ability to identify words. The phonics method provides an analytic approach to word recognition--the letter-sound relationships are blended to sound a word. The impress method provides an oral whole-word approach with emphasis on conditioning a smooth, fluent oral reading pattern.

Heckelman (1966) explains the impress method as an audio-neural conditioning process whereby the incorrect reading habits of the child are suppressed and then replaced with correct fluent reading habits. He states that by the time most children reach remedial reading teachers, they have accumulated many incorrect reading habits and eye movements and have lost confidence, all of which combine to produce varied and inefficient reading patterns, such as reading word by word.

Heckelman (1968) discusses reading as an instantaneous memory process. He notes that many students learn

to read before they have reached school-age level and before being taught by parents or teachers. He states that this and other observable evidence, which he does not cite, point to the fact that, for a child without neurologically defective systems, reading is a simple, uncomplicated process--so simple that it may be only an automatic memory process. In contrast, for a disabled reader reading is not automatic. The disabled reader does not remember accurately what he had been exposed to by means of word-recognition training. His attentive powers are weak and do not allow memory processes to be strengthened properly. Heckelman states that some children do not inherit neurological systems that are capable of utilizing the necessary instantaneous memory span; abnormalities may delay the growth of well-functioning automatic memory systems.

Heckelman notes that when a child learns or fails to learn may not be due to a selective process in the brain, but to destruction of some of the elements of the presentation by peripheral interference. Some current practices cited which may interfere with the automatic memory processes are (1) the reading circle in primary grades where poor readers read aloud with the other poor readers listening to their errors, and (2) the dissection of words over an extended period of time by word analysis

or phonics methods which destroy the instantaneous reaction a child must exhibit if he is to read well. Heckelman sees anxiety feelings and other emotional inhibitors aroused by these teaching techniques adversely affecting memory storage of words.

Heckelman (1969) calls the impress method of reading a direct and fundamental system of reading, as it involves a combination of reflexive neurological systems. The instructor using the impress method is cautioned to forget conventional approaches to the teaching of reading and to think in terms of the child's exposure to correct reading processes. The correct reading systems are deeply impressed, and, using these reflex systems as a basic vehicle for the correct reading process, the child can begin to read.

While much of Heckelman's discussion focuses on elements that cannot be directly observed, there are many operations of the impress method that may be observed and related to improvement in reading.

The impress method may condition more efficient visual processes in reading through consistent reading practice. This practice may eliminate poor phrasing and rereading by directing the visual intake through left-to-right control patterns. The use of material read in a fluent pattern may serve as a pacing procedure for

developing fluency in reading. Oral reading with the teacher may serve as motivation for the student, as the teacher is hopefully enlisting the student's interest and motivating him.

The impress method employs a multisensory approach: the student is auditorially involved as he listens to the teacher reading, visually involved as he looks at the words, verbally involved as he speaks the words, and tactily involved when he uses his finger as a locator. By using several senses, it is assumed that each experience is reinforced and the learner is developing a better understanding of the material presented.

With the impress method, quantities of reading material are covered orally. During the present investigation, each child in the impress group read grade-level material for 3 weeks. Much of the vocabulary might have presented problems to the student in classroom or independent reading sessions. The supportive aid of the teacher allows the child an opportunity to attempt reading. The smooth flow of the reading allows for some continued success with reading, and any anxiety built up from unrewarding sessions may be reduced. With continued encouragement and the child's own motivation to read well, a successful reading pattern can possibly be developed.

Phonics instruction presents correspondences

between letter groups and sounds. Practice is necessary so that the child learns to distinguish words visually and repeat them orally. It is hoped that learning will be meaningful to the child through the application of word-recognition skills to interpret the material he is reading.

CHAPTER III

PROCEDURE

This chapter will describe an investigation which studied the effects of an impress method of reading instruction. A group of students receiving reading instruction with the impress method was compared by pre- and posttesting with a group of students receiving individual phonics instruction and a control group of students who received no special instruction.

In this study the phonics group controlled for the novelty or Hawthorne effect by operating under similar conditions of individualized instruction to that of the impress group, with the exception of method of instruction.

Research Design

The design in this investigation followed Campbell and Stanley's (1967, p. 25) pretest-posttest control group design, as illustrated on the following page.

Campbell and Stanley state that the most adequate all-purpose assurance of lack of initial biases between groups is randomization. In this study the remedial population was randomized, and it was assumed that all three

		Pretest	Remedial Training	Posttest	
Experimental	R	O_1	X_1	O_1	O_2
Control 1	R	O_1	X_2	O_1	O_2
Control 2	R	O_1		O_1	O_2

O_1 = Gray Oral Reading Test.

O_2 = Gates-MacGinitie Reading Test.

X_1 = Impress method.

X_2 = Phonics treatment.

Control Group 2 was tested only and stayed in their regular class.

Fig. 1.--Pretest-posttest control group design.

groups were basically comparable to start with, allowing for individual differences. Therefore, the Gates-MacGinitie Reading Test was used for posttesting only.

Description of the Sample

The participants in this study were 12 fourth- and 12 fifth-grade students from Central School, East Brunswick, New Jersey, who had scored one year or more below grade placement on the paragraph meaning subtest of the Stanford Achievement Test. Selection was random--names were picked from a hat--with IQs ranging from low to average. The school is located in a middle- and lower-middle-class neighborhood. The 12 fourth graders were randomly assigned to either the impress, phonics, or control group, with 4 students placed in each group. The same procedure was followed for placement of fifth-grade students. There were four girls and four boys in the impress group; one girl and seven boys in the phonics group; and two girls and six boys in the nontreatment control group.

Letters were sent to the parents of those students in the impress and phonics groups to inform them of their child's participation in a study concerning various techniques of helping children improve their performance in reading. A sample letter will be found in Appendix C.

Method of Instruction

The impress and phonics groups met with the instructor for 15 minutes a day, 5 days a week, from April 19, 1971, until May 28, 1971. This instruction was scheduled during regular classroom instruction time and did not interfere with the special instruction periods of art, music, gym, or health education.

The student in the impress group received a brief orientation telling him that he would be reading orally with the instructor and that he was to slide across the words and do the best he could. ("Slide across" was meant to convey the idea of fluent reading with the teacher.) With the student placed slightly in front of the teacher and with the student and the teacher holding the book jointly, the reading was begun. During the reading session, the pacing of the oral reading was varied--the instructor's voice was louder and faster than the student's at one time and at other times his voice was softer and slower than the reading voice of the student. After the reading session, the teacher commented positively on the success of the child and called attention to the fluency with which he was reading.

The phonics group was tested with the Individual Phonetics Analyses (Fry, 1970). The analyses were used as a guide for determining phonics rules to be taught or

reviewed with each student. All sounds were applied aurally and visually to phonetically regular words. As with the impress group, progress proceeded on an individual basis.

Materials

Students in the impress group were given a choice of stories and books at second- and third-grade reading levels to start the impress sessions. The materials included high-interest, remedially oriented books such as Benefic Press's The Lost Uranium Mine and Fire on the Mountain, the Checkered Flag Series, and the Breakthrough Series. Books that could be found in the school library, such as Amelia Bedelia, Henry Huggins, and Jennifer, Hecate, Macbeth, William McKinley, and Me, Elizabeth, were also read.

Individual progress varied as higher reading level material was presented, with all fourth-grade students reading stories and books of a fourth-grade readability for at least 3 weeks of instruction time and all of the fifth-grade students reading stories and books of a fifth-grade readability for at least 3 weeks of instruction time. Readability was determined by use of the Fry Readability Formula (Fry, 1965).

The phonics group used individual lessons from the Reader's Digest Reading Skill Practice Pad, Lyons and

Carnahan's Phonics We Use, Book E, and Phonetic-Middle Grades, a Daniel Reardon publication. These systematic phonics materials developed knowledge of letter-sound correspondences which were then applied to exercises which used phonetically regular words. Individual instructor-prepared materials were also used for oral and written practice.

Measurement Devices

The Gray Oral Reading Test, Forms A and B, were used as pre- and posttest measurement devices. Each test presents 13 reading passages with comprehension questions which check literal meaning. The tests function to assess oral reading skill and aid in diagnosing reading difficulties. Passages are scored on the basis of time required for reading and the number of errors made. Errors are the major factor in scoring, rather than time. The total passage is converted to a grade equivalent score. There are two tables for each form when raw scores are converted to grade equivalent scores--one table for boys and one for girls. Because the value of the raw scores is not equivalent for boys and girls, only grade equivalent scores are reported. The average standard error of measurement is conservatively taken as 4.0 points. In grade scores this is about 0.4 to 0.5 at first grade, 0.6 or 0.7 at fourth grade, and 0.8 at eighth grade (Buros, 1965).

The Gates-MacGinitie Reading Test, Survey D, Form 1, was used as a posttest. It consists of three parts: speed and accuracy, vocabulary, and comprehension. Speed and accuracy provides an objective measure of how rapidly students can read with understanding. The tests contain 36 short paragraphs of fairly uniform difficulty which end in questions or incomplete statements. The number of paragraphs the student completes in 5 minutes provides a measure of how rapidly he reads. The vocabulary test contains 50 items that gradually become more difficult and are a test of the student's reading vocabulary. The comprehension test contains 21 passages of progressing difficulty to measure the student's ability to understand what he has read. The raw scores from each part of the test are converted into a grade score.

To cast further insight on the nature of the group, expectancy scores were computed. An attempt to determine what each student could be expected to do according to his ability was measured by computing expectancy age grade placement scores. The scores were obtained for all but one of the participants (his IQ was not available). The scores were derived by calculating the expectancy age with the formula:

$$XA = \frac{2 + MA + CA}{3}$$

where MA = mental age derived by multiplying IQ (Lorge-Thorndike) by chronological age;

CA = chronological age; and

XA = expectancy age.

Expectancy age grade placement (XAGP) was determined by subtracting the average age at entrance to school, 5.4, from the expectancy age (XA).

Treatment of Data

The nonparametric Kruskal-Wallis one-way analysis of variance by ranks was used. Scores from the Gray Oral pre- and posttest and the posttest scores of the Gates-MacGinitie Reading Tests, subtests in speed and accuracy, vocabulary, and comprehension, were ranked for each group. Ranks were added and computations were made. The significance of the observed value was assessed by reference to the chi-square table. A significance level of .05 was applied to all results.

CHAPTER IV

FINDINGS AND DISCUSSION

This study attempted to investigate the effectiveness of the impress method of reading instruction with fourth- and fifth-grade students who were reading one year or more below grade placement on the paragraph meaning subtest of the Stanford Achievement Test. The students were randomly assigned to an impress, phonics, or control group and pre- and posttested with the Gray Oral Reading Test and posttested only with the Gates-MacGinitie Reading Test, subtests in speed and accuracy, vocabulary, and comprehension.

Results of the testing are reported with mean raw scores and mean grade level scores. The Kruskal-Wallis one-way analysis of variance by ranks was applied to the data to test for significance at the .05 level of confidence. Appendix A presents sample computations of the Kruskal-Wallis one-way analysis of variance by ranks using data from the Gates-MacGinitie Reading Test.

In general there were no observable differences among groups. The tests showed no significant differences among groups at the .05 level of confidence, indicating

that the impress method was not significantly superior to a phonics method of reading instruction on any test.

Hypothesis Testing

The first hypothesis stated: There is no significant difference in the oral reading scores of subjects in the impress, phonics, and control groups.

This hypothesis was upheld. There was little difference between the pretest means of the impress and phonics groups and the posttest means of the two groups. The control nontreatment group was about one-half year below the other two groups both at pre- and posttest. The impress and control nontreatment groups both showed a mean gain of one month, while the phonics group showed a gain of 5 months. The Kruskal-Wallis test showed no significant differences between treatment groups on pretesting and no significant differences between treatment groups on posttesting.

The mean reading scores of the three groups on the pre- and posttest of the Gray Oral Reading Test are presented in Table 3 (p. 33). Gain scores based on the difference between pre- and posttest means are also reported.

The second hypothesis stated: There is no significant difference in the silent reading speed and accuracy scores of subjects in the impress, phonics, and control groups as determined by the speed and accuracy subtest of

the Gates-MacGinitie Reading Test, Survey D, Form 1.

There were no pretests on any of the Gates-MacGinitie subtests. The speed and accuracy posttest mean raw scores and mean grade equivalent scores showed little difference among groups. There were no significant differences at the .05 level of confidence among the groups. Table 4 presents the mean raw scores and the mean grade level posttest scores of the three groups on the speed and accuracy section of the Gates-MacGinitie Reading Test.

The third hypothesis stated: There is no significant difference in the ability of subjects in the impress, phonics, and control groups to identify vocabulary as determined by the vocabulary subtest of the Gates-MacGinitie Reading Test, Survey D, Form 1.

The vocabulary posttest mean raw scores and mean grade equivalent scores showed some differences among the groups. The phonics and impress groups had the higher means. The Kruskal-Wallis test showed no significant differences at the .05 level of confidence among groups. Table 5 (p. 35) presents the mean raw scores and mean grade level posttest scores of the three groups on the vocabulary section of the Gates-MacGinitie Reading Test, Survey D, Form 1.

The fourth hypothesis stated: There is no significant difference in the comprehension scores of subjects

TABLE 3

MEAN GRADE LEVEL READING SCORES FROM THE GRAY ORAL READING TESTS, FORMS A AND B

(N = 8 per group)

Group	Pretest	Posttest	Gain
	Grade equivalent	Grade equivalent	Grade equivalent
Impress	2.9	3.0	0.1
Phonics	2.7	3.2	0.5
Control	2.3	2.4	0.1

TABLE 4

MEAN RAW AND GRADE EQUIVALENT POSTTEST SCORES FROM THE SPEED AND ACCURACY SECTION OF THE GATES-MACGINITIE READING TEST, SURVEY D, FORM 1

(N = 8 per group)

Group	Posttest speed score		Posttest accuracy score	
	Raw score	Grade equivalent	Raw score	Grade equivalent
Impress	11.13	3.5	9.75	3.6
Phonics	11.13	3.6	9.50	3.4
Control	11.38	3.7	8.88	3.3

in the impress, phonics, and control groups as determined by the comprehension subtest of the Gates-MacGinitie Reading Test, Survey D, Form 1.

In comparing the comprehension posttest mean raw scores and mean grade equivalent scores of the three groups, some differences are to be noted, with the impress group having the highest mean. There were no significant differences at the .05 level of confidence among the groups. Table 6 presents the mean raw scores and the mean grade equivalent posttest scores of the three groups on the comprehension section of the Gates-MacGinitie Reading Test, Survey D, Form 1.

Expectancy Data

Expectancy scores were obtained to describe the population more accurately. The scores determined the grade level each student could be expected to reach at the time of instruction based on the student's IQ and chronological age. These scores were compared with the actual achievement of the student based on the comprehension score of the Gates-MacGinitie Reading Test. Of the 24 participants, IQ scores were available for all but one student. Of the 23 students for whom IQ scores were available, 18, or 78 percent, were reading below expectancy. The scores ranged from 0.2 to 2.7 years below grade placement, with a mean of 1.2 years. Five students,

TABLE 5

MEAN RAW AND GRADE EQUIVALENT POSTTEST SCORES FROM THE VOCABULARY SECTION OF THE GATES-MACGINITIE READING TEST, SURVEY D, FORM 1

(N = 8 per group)

Group	Posttest score	
	Raw score	Grade equivalent
Impress	22.38	4.3
Phonics	22.63	4.4
Control	18.75	3.7

TABLE 6

MEAN RAW AND GRADE EQUIVALENT POSTTEST SCORES FROM THE COMPREHENSION SECTION OF THE GATES-MACGINITIE READING TEST, SURVEY D, FORM 1

(N = 8 per group

Group	Posttest score	
	Raw score	Grade equivalent
Impress	24.13	3.7
Phonics	20.00	3.4
Control	16.13	2.8

or 22 percent of the students, were reading at or above expectancy. Their scores ranged from 0.5 to 1.3 years at or above expectancy age grade placement (XAGP), with a mean of 1.1 years.

Of the eight students in the impress group, six students, or 75 percent of the students, were not reading to expectancy. The scores ranged from 0.3 to 1.1 years below XAGP, with a mean of 0.6 years. Two students, or 25 percent, were reading at or above expectancy. Scores were 0.8 and 1.3 years, with a mean of 1.1 years.

Of the seven students in the phonics group (no IQ score was available for the eighth), four students, or 57 percent, were not reading to expectancy. The scores ranged from 0.9 to 1.8 years below XAGP, with a mean of 1.3 years. Three students, or 43 percent, were reading at or above expectancy, with a range of 0.5 to 1.1 years and a mean of 0.8 years.

Of the eight students in the control group, eight students, or 100 percent of the group, were not reading to expectancy, with a range of 0.6 to 2.7 years below XAGP and a mean of 1.6 years.

Table 7 presents the number and percentage of students in each group who were reading below, above, or at XAGP. Appendix D presents sample computations of XAGP and

TABLE 7

THE NUMBER, PERCENTAGE, RANGE, AND MEAN SCORES OF STUDENTS IN THE IMPRESS, PHONICS, AND CONTROL GROUPS WHO WERE READING AT, ABOVE, OR BELOW EXPECTANCY AGE GRADE PLACEMENT

Group	Number of students	Percent of students	Reading grade expectancy deviation in years	
			Range	Mean
Students Reading At and Above XAGP[a]				
Impress	2	25	0.8-1.3	1.1
Phonics	3	43	0.5-1.1	0.8
Control	---	---	---	---
Students Reading Below XAGP[b]				
Impress	6	75	0.3-1.1	0.6
Phonics	4	57	0.9-1.8	1.3
Control	8	100	0.6-2.7	1.6

[a]Mean for group reading at or above XAGP = 0.95.

[b]Mean for group reading below XAGP = 1.2.

the individual IQ scores of the students on the Lorge-Thorndike IQ test.

Attitude Questionnaire

In order to assess the general attitude and feeling of the students towards the reading instruction, a questionnaire was distributed after posttesting to the impress and phonics groups. These questions did not differentiate between the impress and phonics groups. The questions were merely an assessment of the attitudes of those students receiving help.

Question 1: Was there anything you liked about the help you received in reading? This question was answered by eight students, or 50 percent of those surveyed, with statements such as, "The stories were interesting--fun"; "I learned new words"; "I liked reading with someone"; and "I learned new sounds."

Question 2: Was there anything you did not like about the help you received in reading? This question was answered by five students, or 31 percent of the students surveyed, with statements such as, "I knew the work"; "I didn't like reading"; and "I sometimes missed recess."

Question 3: If you had a choice of whether or not to get extra reading help, would you? This question was answered by all of the students, and indicated that a majority (69 percent) of the students would choose to

receive the extra reading help if they had a choice.

Table 8 presents the questions with the number and percentage of answers received for each question.

Discussion

Discussion of the findings includes comments on the data and the relationship of the data to past literature.

While pre- and posttesting of oral reading showed no significance at the .05 level of confidence, the mean gain favored the phonics group. Individual analysis of each student's phonic abilities may have played an important role, as most of the participants had a strong phonics emphasis in their early reading development and the additional practice and application of phonics may have been beneficial in developing reading ability. A phonics criterion test, if administered, would have given a truer indication of the phonic abilities of the group and would have presented more data for consideration.

It had been anticipated that the impress group would gain in this area of testing, as they had practiced oral reading during the treatment. While it is difficult to pinpoint a specific reason for their lack of substantial growth as measured by the oral reading tests, the small number of participants in the study and the resulting sensitivity of the mean scores used to changes in

TABLE 8

QUESTIONS AND ANSWERS RECEIVED TO THE ATTITUDE QUESTIONNAIRE PRESENTED TO THE IMPRESS AND PHONICS GROUPS

Questions	Answered	
	Number	Percent
1. Was there anything you liked about the help you received in reading?	8	50
2. Was there anything you did not like about the help you received in reading?	5	31
3. If you had a choice of whether to receive reading help or not, would you?	16	100
Yes	11	69
No	5	31

individual children's scores should be noted. Individual score fluctuations in a few cases were large enough to affect the means of both impress and phonics groups. It is difficult, therefore, to make assumptions concerning the effectiveness of a treatment knowing that the results could have been markedly affected by the performance of only a few individuals. It should also be noted that working with small groups, as in the present investigation, necessitates evidence of a great deal of growth before any significance can be demonstrated. See Appendix B for individual impress, phonics, and control group test scores.

There were no signficiant differences among the groups in ability to identify vocabulary. Comparison of mean grade equivalent scores showed that the impress and phonics groups did better. Both treatment groups had worked on developing reading vocabulary; the phonics group through an analytic approach and the impress group through a whole-word approach with emphasis on conditioning a smooth, fluent reading pattern. It may be assumed that the practice afforded by impress and phonics methods affected the vocabulary development of some students, although neither approach was significantly better than the other.

The mean grade level comprehension scores of the

three groups did not differ significantly; the impress group did perform better on this subtest than either the phonics or control groups. While comprehension questions were not solicited, the high-interest stories used by the impress group generated a great deal of interest. Students carefully looked over pictures, asked questions, and made comments about the stories they had read--in two cases students asked to read a story for a second time. This behavior indicated that comprehension skills were being practiced, which may account for the more favorable performance of the impress group on the comprehension subtest.

Mean posttest scores differed only slightly among the three groups on the speed and accuracy subtest, and there were no significant differences.

The expectancy age grade placement scores showed that 78 percent of the students were not working to expectancy. It is assumed on the basis of the scores that the two students from the impress group and the three students from the phonics group who were working at or above expectancy age grade placement could not be expected to show great improvement in their reading abilities. Individual and remedial instruction with students working below expected capacity may yield high growth rates, as the individual instruction is hopefully helping the student

span the gap between the work he is capable of learning and his present performance.

The responses on the questionnaire showed a majority of the students holding a positive view towards the reading instruction. The interest and enthusiasm of many students were apparent to the investigator, as some students in the impress group brought their own books for reading. In one particular case the reading level was too difficult. When this was pointed out, the student replied, "We're supposed to be learning new words--this book has lots of new words." Another comment from a student in the group was, "I like coming to read--sometimes I don't know the words and then you say them and I can say them."

Negative sentiments were also voiced by some of the students. Two students were sensitive to the idea of receiving supplemental instruction and were not able to overcome uneasy feelings about working with the instructor in the hallway where they could be observed by their peers.

A comparison of this study's results with those found in the literature finds this investigation in disagreement with the Heckelman (1961, 1966, 1969) and Gardner (1963, 1965) studies. While Heckelman's study had no control group, the mean gain in reading comprehension of the students instructed with the impress method was 1.9

grade levels after 7-1/2 hours of impress training time. Gains were significant both at the .001 and .005 levels using the sign test of Dixon-Moud. Gardner's (1965) study, using a control group, credited the impress group with a mean gain of 3 months, which was statistically significant at less than the .02 level of confidence using the Dixon-Moud sign test for paired observations.

The participants in the Heckelman study reported in 1969 were experiencing "severe difficulty" with reading --at least 3 years or more below actual grade placement and expectancy. The students were in grades 7 through 12, with IQ scores no lower than 90 on the WISC. In the Gardner study the population was reading 2 years below chronological age placement and was in grades 5 through 8 with IQs of 85 and above on the Stanford-Binet. The students in the present investigation had reading deficiencies of one year or more below grade placement and were in grades 4 and 5. The expectancy scores of the students showed that all students were not reading below expectancy. Seventy-eight percent of the students participating in the study were below XAGP, with scores that ranged from 0.2 to 2.7 years below XAGP. Twenty-two percent were reading at or above expectancy.

Hollingsworth's (1970) study found no significant differences between groups. This is in agreement with the

present investigation. Procedures and populations did vary. An E.F.I. wireless system with eight students monitored by one teacher was used in place of the one teacher, one student procedure followed in the Heckelman (1961, 1966, 1969), Gardner (1963, 1965), and present investigations. The participants in the Hollingsworth study were normal readers in the fourth grade. Hollingsworth hypothesized that in order for improvement to take place with the impress technique, there must be the personal involvement of the teacher and one child reading together and that this technique may be effective with retarded readers rather than normal readers. Both of the conditions suggested by Hollingsworth were implemented in this study, but significance was not achieved.

The failure of the present investigation to achieve significance with the impress technique leads the investigator to hypothesize that the impress method cannot be indiscriminately applied to a group of reading students --whether they are experiencing difficulty in reading or not. The Heckelman and Gardner studies picture a specific remedial population which had success with the impress method of reading instruction. These students were in fifth grade or above with average or above-average IQs; they were reading below expectancy; they had limited ability in distinguishing or interpreting sounds; and

they had experienced little success in reading and remedial reading programs, having failed to respond to conventional techniques.

The motivation for this investigation was to explore the possibility of using the impress method as a technique for developing the reading skills of remedial readers. In this investigation the impress method of reading instruction was not significantly better than a phonics method of instruction with a younger population whose reading problems were not as severe as those described in the Heckelman (1961, 1966, 1969) and Gardner (1963, 1965) studies.

Teacher Observations

Though not an original objective of the study, a log of observations concerning the methods employed and the attitudes of students was kept by the investigator during the 6-week treatment period. A problem noted in the log developed with the procedures employed with the impress method. With all students participating in the impress group, a workable pace of oral reading had to be set. For some students reading proceeded at a smooth, rapid pace. Other students could not keep up with the rapid pace and would slur and skip words. It had been suggested by Heckelman (1966) that if a student was not able to keep up, he should be urged to continue reading

and forget his mistakes. This advice did not prove helpful because problems arose when the pacing varied.

The students experienced difficulty when it was necessary for their voice to lead, as they were developing the habit of listening to the teacher read and having her carry them along. A solution to the problem was for the teacher to slow down the reading speed and continually vary the pacing. This approach seemed to keep attention focused on reading the words, and it became easier for some students who were slurring and skipping words to take the lead when the pacing varied.

Heckelman's writings do concede that the speed of reading may be adjusted if problems continue, as they did in this investigation.

The impress literature does not state any criteria for the quantity of material to be read by the student. The Heckelman study showed a significant growth in reading after 7-1/2 hours of impress instruction. The Gardner study showed significant growth (3 months) after 5 hours of instruction. The total instruction time for each group in this investigation was 7-1/2 hours. By adjusting the impress technique to a slower pace for some students, the quantity of material read was reduced and may have affected reading development.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The major purpose of this study was to investigate whether the impress method of reading instruction was effective in developing reading skills with fourth- and fifth-grade students who were reading at least one year below grade level on the paragraph meaning subtest of the Stanford Achievement Test. These students were randomly assigned to an impress group, a phonics group (which served to control for the Hawthorne effect), and a non-treatment control group.

The impress method involves the teacher and student in a unison reading process where the student and teacher read aloud simultaneously. The teacher and later the child use their fingers as locators, with the finger at the location of the spoken word. A pacing procedure is employed and allows the teacher to read louder and faster than the student at times; at other times the teacher's voice becomes softer and slower than the student's voice. The beginning materials included stories and books at second- and third-grade reading levels.

Individual progress varied, with all fourth-grade students reading stories at a fourth-grade readability level for at least 3 weeks of instruction time and all fifth-grade students reading at a fifth-grade readability level for at least 3 weeks of instruction time.

The phonics group was individually tested with the Individual Phonetic Analyses (Fry, 1970). The analyses were used as a guide for determining rules to be taught or reviewed with each student. Commercial and teacher-prepared materials were used for instruction.

The students in the impress and phonics groups met individually with the instructor for 15 minutes a day, 5 days a week, from April 19, 1971, until May 28, 1971.

The impress, phonics, and control groups were pre- and posttested with the Gray Oral Reading Tests, Forms A and B, and posttested with the Gates-MacGinitie Reading Test, Survey D, Form 1, with subtests in speed and accuracy, vocabulary, and comprehension. Expectancy age grade placement scores were obtained for all participants, and a questionnaire was distributed to the impress and phonics students to determine their attitudes on the instruction they had received.

The Kruskal-Wallis one-way analysis of variance by ranks was applied to the data to test for significance at the .05 level of confidence. The data showed no

significant differences among the groups on the Gray oral pre- and posttest and the subtests of speed and accuracy, vocabulary, and comprehension of the Gates-MacGinitie Reading Test.

Conclusions

The motivation for this investigation was to explore the possibility of using the impress method to develop the reading skills of remedial readers. On the basis of the data collected in this investigation there was no measurable achievement in the reading ability of students in the impress, phonics or nontreatment control groups and this study was not able to demonstrate the effectiveness of the impress method.

The impress method was not more effective than a phonics method or no method in the development of oral reading ability, vocabulary, silent reading comprehension and speed and accuracy of reading for the fourth and fifth grade students who were reading one year or more below grade level.

A serious limitation was the type of pupil selected on the basis of chronological age and a reading disability of at least one year below grade placement. After treatment, I.Q.'s were available and expectancy scores showed 22 percent of the population reading to expectancy with five of the participants having I.Q.'s below 85.

Previous research indicated that the impress method had been successful with a population of "severely retarded students" who had I.Q.'s above 85 and who were reading below grade level and expectancy.

A further limitation of this study was that the tests used were developed for annual measurement and in this study were used for pre- and posttesting during a six week treatment period.

The lack of any minimum criteria for treatment time and quantity of material to be read before achievement in reading ability might be realized may have contributed to the lack of significant achievement for the impress group.

The small number of students participating in this study limits the assumptions to be made because of the sensitivity of the data to changes in individual scores.

Recommendations

This study is at variance with the two earlier studies on the impress method, and the effectiveness of the method is unresolved.

Future studies should investigate and further clarify the effectiveness of the impress method with a carefully selected population of students having I.Q.'s above 85, a reading disability of at least two to three years below grade level and expectancy and previous

failure with conventional reading techniques.

The amount of time spent with the impress method should be studied to determine whether treatment over a longer period of time would be more successful in showing a significant amount of reading development. The quantity of materials read during treatment might also be studied to determine whether there is a minimum amount of material to be covered before some achievement in reading may be observed.

With the cooperation of two or more instructors or an instructor with paraprofessionals the number of students in a study could be expanded and more conclusive results on the effectiveness of the impress method might be obtained.

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APPENDIX A

SAMPLE COMPUTATIONS OF THE KRUSKAL-WALLIS ONE-WAY ANALYSIS OF VARIANCE BY RANKS USING RAW SCORES FROM THE GATES-MACGINITIE READING TEST, SUBTEST IN COMPREHENSION

$$H = \frac{12}{N(N+1)} + \frac{R_j^2}{n_j} - 3(N+1)$$

k = number of samples

n = number of cases in the jth sample

N = n_j, the number of cases of all samples combined

R_j = sum of ranks in jth sample (column)

k_Σ directs one to sum over the k samples (columns)

j = 1

C = control

P = phonics

I = impress

C	I	P
12.5	9.5	22
7.5	17	5.5
7.5	15	1.5
1.5	17	3.5
11	17	12.5
14	24	23
5.5	19	3.5
9.5	20	21
69	138.5	92.5

138.5 × 138.5 = 19182.25

92.5 × 92.5 = 8551.25

69 × 69 = 4761

6925 + 11080 + 4155 + 1385 = 19182.25

4625 + 1850 + 8320 = 8551.25

621 + 414 = 4761

4061.81 × 12 = 48741.72

406181 + 812362 = 48741.72

8 | 32494.50 = 4061.81

600 | 48741.72 = 81.236

81.24 − 75.00 = 6.24*

*6.24 is not significant at the .05 level of confidence.

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APPENDIX B

IMPRESS, PHONICS, AND CONTROL GROUPS' TEST SCORES

TABLE B1

IMPRESS GROUP RAW SCORES AND GRADE EQUIVALENT SCORES

Student	Gray oral 4/19/71	Gray oral 5/28/71	Gates-MacGinitie Silent Reading Test 5/28/71							
			Speed		Accuracy		Vocab.		Comp.	
			Raw	G.E.	Raw	G.E.	Raw	G.E.	Raw	G.E.
1	2.5	2.4	11	3.5	11	3.8	14	3.1	17	2.8
2	2.0	2.3	7	2.4	6	2.6	11	2.6	21	3.2
3	4.0	3.4	13	4.0	11	3.8	26	4.7	23	3.4
4	2.0	2.1	7	2.4	5	2.4	18	3.5	23	3.4
5	2.8	2.8	13	4.0	11	3.8	24	4.4	23	3.4
6	3.1	3.0	15	4.6	13	4.4	25	4.5	37	5.5
7	3.4	3.8	13	4.0	13	4.4	30	5.5	26	3.9
8	3.8	4.5	10	3.2	8	3.0	31	5.8	27	4.0

TABLE B2

PHONICS GROUP RAW SCORES AND GRADE EQUIVALENT SCORES

Student	Gray oral 4/19/71	Gray oral 5/28/71	Gates-MacGinitie Silent Reading Test 5/28/71					
			Speed		Accuracy		Vocab.	Comp.
			Raw	G.E.	Raw	G.E.	Raw G.E.	Raw G.E.
1	3.5	3.1	9	2.9	7	2.8	19 3.7	32 4.7
2	1.9	1.7	6	2.2	6	2.6	13 2.9	15 2.6
3	2.7	2.7	9	2.9	8	3.0	22 4.1	8 2.2
4	1.9	2.2	9	2.9	7	2.8	21 4.0	10 2.3
5	2.7	4.4	18	5.5	17	5.5	33 6.2	19 3.0
6	4.4	5.7	20	6.3	15	4.9	32 6.0	35 5.1
7	2.1	2.6	9	2.9	7	2.8	15 3.2	10 2.3
8	2.1	3.0	9	2.9	9	3.3	26 4.7	31 4.5

TABLE B3

CONTROL GROUP RAW SCORES AND GRADE EQUIVALENT SCORES

Student	Gray oral 4/19/71	Gray oral 5/28/71	Gates-MacGinitie Silent Reading Test 5/28/71							
			Speed		Accuracy		Vocab.		Comp.	
			Raw	G.E.	Raw	G.E.	Raw	G.E.	Raw	G.E.
1	1.9	2.0	11	3.5	8	3.0	21	4.0	19	3.0
2	2.6	2.1	7	2.4	5	2.1	18	3.5	16	2.7
3	2.3	2.8	8	2.6	6	2.6	17	3.4	16	2.7
4	1.9	1.9	10	3.2	6	2.6	18	3.5	8	2.2
5	2.3	3.0	15	4.6	13	4.4	21	4.0	18	2.9
6	2.6	2.6	14	4.3	13	4.4	22	4.1	20	3.1
7	2.9	3.0	21	6.6	15	4.9	20	3.9	15	2.6
8	2.0	2.2	5	2.1	5	2.4	13	2.9	17	2.8

APPENDIX C

SAMPLE OF PARENT LETTER AND ATTITUDE QUESTIONS

March 22, 1971

Dear Parents:

Mrs. Patricia Gawarkiewicz, graduate student at Rutgers University and former teacher at Central School, is presently engaged in a study concerning various techniques of helping children improve their performance in reading. Mrs. Gawarkiewicz has been given permission to work in our building with a number of youngsters to provide individual help.

Your child has been chosen as a possible participant in the program because we believe that this individual attention would be worthwhile. The program will run every day for 15 minutes and continue for 6 weeks.

One important consideration in selecting youngsters is that their attendance be regular. If you anticipate your child's being away from school for any part of this period (April 19-May 28), would you please notify the school before the end of this month.

If you have any question about your child's work with Mrs. Gawarkiewicz, please feel free to call the school.

Yours very truly,

George Finkel
Principal

PLEASE DO NOT WRITE YOUR NAME ON THIS PAPER

1. Was there anything you liked about the help you received in reading?

2. Was there anything you did not like about the help you received in reading?

3. If you had a choice of whether or not to get extra reading help, would you? YES NO (Circle One)

APPENDIX D

SAMPLE COMPUTATIONS OF EXPECTANCY AGE GRADE PLACEMENT (XAGP) AND THE INDIVIDUAL SCORES FROM THE LORGE-THORNDIKE INTELLIGENCE TEST

Impress Student #2

$$\text{Expectancy age} = \frac{2\ MA + CA}{3}$$

MA = mental age (IQ [95] x chronological age)

CA = chronological age (10)

$$\frac{2(9.5) + 10}{3}$$

$$\frac{19 + 10}{3}$$

$$\frac{29}{3} = 9.7$$

$$XAGP = \frac{9.7}{-5.4*}{4.3}$$

Expectancy age grade placement = 4.3

Impress		Phonics		Control	
Student	IQ	Student	IQ	Student	IQ
1	95	1	80	1	103
2	95	2	91	2	93
3	89	3	87	3	80
4	65	4	87	4	74
5	98	5	*	5	86
6	88	6	91	6	90
7	94	7	86	7	85
8	91	8	78	8	86

*Not available.

Median IQ of the three groups = 88.

APPENDIX E

PUBLISHED TESTS USED IN THIS STUDY